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PROFESSOR M. P. KOSTENKO, CORRESPONDING MEMBER OF THE ACADEMY OF SCIENCES USSR

(On his 60th Birthday and 30th Year of Scientific Pedagogical Activity)

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Mikhail Polivevktovich Kostenko was born in 1889 in Belgorod. In 1908 he entered Petersburg Electrical Engineering Institute but was repressed by the Tsarist government in 1910, and exiled as an active participant in the Student Revolutionary Movement.

In 1913 he entered Petersburg Polytechnic Institute and, after finishing in 1918, remained at the Chair of Electric Machines there to prepare for lecture work. In 1920 he was appointed a lecturer of this institute, and since then has carried on scientific, engineering, and pedagogical work in the field of electric machine building.

During the first years of his scientific activity, Kostenko was responsible for a number of valuable inventions such as the three-phase commutator generator with variable frequency at constant speed, a magnetoelectric hammer, etc., and took part in designing an electric impulse generator for obtaining very intense magnetic fields. One of these generators is in the Institute of Physical Problems, Academy of Sciences USSR, in Moscow; the other was designed by Kostenko somewhat later for the Ural Physicotechnical Institute.

In 1924 Kostenko, without ceasing his activity in the Polytechnic Institute, began to work at the "Elektrosila" Plant as an engineer, designing special electric machines. In a series of periodical articles he gave the theoretical basis for the circuit of a universal transformer, which has found wide application in the field of induction machines and confirmed his theoretical premises by original experiments. At the same time he gathered material for his book, AC Commutator Machines. Published in 1933, it is the most complete textbook in this difficult field of electric machine building.

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In 1927 Kostenko was confirmed as a docent of the institute, and in 1930 as a professor and head of the Chair of Electric Machines, which latter post he has held up to the present. At the same time, he continued to combine work in the institute with work at the "Elektrosila" Plant, and in 1928 was appointed head of its General Plant Research Bureau. After 1932, due to the increasing volume of work of the institute, he changed to the position of consultant for the plant. In this period Kostenko worked on a number of problems in the field of induction, commutator-less, and synchronous machines, and proposed an original method of designing a double squirrel-cage induction motor. He also worked out a new method for heat tests of induction and synchronous machines, and, on the basis of the latest theory of synchronous machines, clarified the nature of the transient processes during sudden short circuits in turbogenerators. At the same time, Kostenko was collecting material for his fundamental book, Turbogenerators, which was written in collaboration with A. Ye. Alekseyev and published in 1939.

In 1935, on the instructions of Ordzhonikidze, the People's Commissar for Heavy Industry, Kostenko was ordered to the Khar'kov Electromechanical Plant to help eliminate the difficulties which the plant was encountering, mainly in making heavy-duty machines. In 1936 these tasks were fulfilled, and Kostenko returned to his basic work in the Leningrad Polytechnic Institute. There, under his guidance, the scientific research work of the Chair of Electric Machines was developed on a large scale. At this time, Kostenko supervised development work on a series of electric machines being designed by USSR plants and devised a procedure for designing a series on the basis of the law of geometric similarity of a number of single-type electric machines.

In 1939 Kostenko was elected Corresponding Member of the Academy of Sciences USSR and began to work in the Department of Technical Sciences on the commission for selecting a current system for the electrification of USSR railroads, and also in Academician K. I. Shenfer's group investigating special types of electric machines. The main result of this work was a thoroughly conducted appraisal of a new type of traction motor proposed by O. V. Benedikt and built as an experimental model at the "Dinamo" Plant.

From 1942 to 1944, Kostenko worked in Tashkent as professor in the Chair of Electric Machines of the Central Asia Industrial Institute and in the Uzbek Affiliate of the Academy of Sciences USSR as scientific chief of the Power Engineering Sector.

The extensive monograph, "Electromagnetic Processes in Systems with High-Power Rectifier Installations," written in 1946 by Kostenko in collaboration with L. R. Neyman and G. N. Slavizevich, uncovered mistakes existing in previous theory on this subject and created a basis for the correct analysis of the occurring processes. At the same time, Kostenko worked on the compilation of a fundamental textbook Electric Machines, the first part of which appeared in 1944 and the second part in 1949.

Since 1944, Kostenko has continued in charge of work on testing large synchronous generators at the electric power stations of Lenenergo and Mosenergo. He has advanced and provided the experimental basis for suggestions concerning the design of a new type of low-power accommutating generator operating at variable speeds, but at practically constant voltage.

During his many years of fruitful scientific and teaching activities, Kostenko has twice been awarded the Order of Labor Red Banner in addition to other medals. For his work on the development of power engineering and the improvement of the national economy of the Uzbek SSR, he received the title of Honored Worker of Science and Technology of the Uzbek SSR. For developing and placing into production new types of electric machines, he was awarded a Stalin Prize in 1949.

Organizing a capable team of scientists and researchers and wisely directing it toward solving the most important scientific and practical problems of USSR electric machine building, Kostenko has educated a whole generation of electromechanical specialists.

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